Interaction Between JULGI And G-Quadruplex: Prominent Factor of Strategy For Improving Crop Yield

Eunhye Jung[1]
[1]*POSTECH*
gracejung117@postech.ac.kr

JULGI is the RNA binding protein(RBP), especially to G-quadruplex. *In vivo*, it directly binds to the SMXL5 5'UTR which is a precursor of SMXL5, a positive regulator of phloem differentiation of plant, and then induces G-quadruplex formation to restrict the translation. Although JULGI has important roles in transport capacity, plant growth, and finally crop yield, how JULGI interacts with G-quadruplex is not known yet. Also, JULGI has a unique feature that sets it apart from other G-quadruplex binding proteins. Unlike others, JULGI has a preference for RNA over DNA and it can not only stabilize but also induce the G- quadruplex. So, I try to understand the binding mechanism between JULGI and G- quadruplex in molecular level by crystallography and biochemical assay. Currently, I aim to find the condition where JULGI is stabilized and use various types of G-quadruplex to verify the difference between them. This future finding will be helpful to design a new strategy for increasing crop yield.